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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,172	08/09/2001	Chris Parfeniuk	HO57-235	6785

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EXAMINER
BREWSTER, WILLIAM M

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 03/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Application No.	Applicant(s)	
	09/928,172	PARFENIUK ET AL.	
	Examiner	Art Unit	
	William M. Brewster	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *38-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *38-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

The following rejection has not been changed from the non-final rejection of Paper No. 7, sent 4 December 2002. It is republished for convenience.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al., U.S. Patent No. 5,836,506, in view of Fukasawa et al., U.S. Patent No. 4,842,706.

Hunt (506) teaches, in fig. 5, a physical vapor deposition target 10 construction comprising: a physical vapor deposition target 16 consisting essentially of high purity aluminum material, col. 4, lines 16 - 24, and diffusion bonded, col. 6, line 59 - col. 7, line 31, to an aluminum-containing backing plate, col. 4, lines 24 - 36.

Hunt (506) does not specify the grain diameter of the aluminum target material, but Fukasawa does specify this. Fukasawa teaches in fig. 1, a target material made of aluminum and wherein a predominate portion and all of the grains in the target material are: less than 100 μms in maximum dimension, less than or equal to about 50 μms, about 30 μms to less than 100 μms, col. 2, lines 45 - 61. Fukasawa gives motivation in col. 1, line 50 - col. 2, line 4. It would have been obvious to a person of ordinary skill in

the art at the time the invention was made to recognize that combining Fukasawa's process with Hunt (506)'s invention would have been beneficial because Hunt (506) provides a sheet resistance which has a uniformity of sheet resistance.

Claims 44-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt in view of Fukasawa as applied to claims 38-43 above, and further in view of Hunt, U.S. Patent No. 6,073,830.

Hunt (506) and Fukasawa do not specify the type of aluminum composing their backing plate, but Hunt (830) does. Hunt (830) teaches in fig. 2, a physical vapor deposition target 10, with backing plate 17, comprises a material selected from the group consisting of 2000 Series aluminum, 5000 Series aluminum, 6000 Series aluminum, and 7000 Series aluminum, a 6061 aluminum alloy, col. 9, lines 15 - 24. Hunt (830) gives motivation in col. 3, lines 34-63. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Hunt (830)'s process with Hunt (506) and Fukasawa's invention would have been beneficial because it is more cost effective to provide a two piece construction with a backing plate made from a less expensive material.

Neither Hunt (506), Fukasawa, nor Hunt (830) states the bonding strength between the target and the backing plate. However, as the combined invention includes an aluminum target with a maximum grain size between 50 μms and 100 μms diffusion bonded to a backing material of 6061 aluminum, the invention embodies the physical parameters of having bond strength of at least 5000 psi, from about 8000 psi to about 10,000 psi.

Response to Arguments

Applicant's arguments presented in Paper No. 7, received 28 February 2002 have been fully considered but are not found persuasive by the examiner.

Applicant argues that the combination of Hunt, U.S. Patent No. 5,836,506 and Fukasawa, U.S. Patent No. 4,842,706 do not teach the independent claim. Specifically, applicant asserts Hunt (506) does not disclose a small grain size for his aluminum target, and even if he started with small grain sizes, the grain sizes would expand in the diffusion bonding process. Applicant further asserts that Fukasawa's target aluminum with grain sizes as small as 1 μm in diameter couldn't properly be combined with Hunt (506).

Examiner disagrees. Hunt (506) may not specify a small grain size, but as Hunt does not limit his invention to a specific grain size range, Hunt leaves this to be optimized by the user of his invention. Fukasawa discloses the average grain sizes of his target to be as small as 1 μm. Considering Fukasawa disclosed such a dimension 12 years before the pending application, the examiner concludes that small grain sizes are notoriously obvious and conventional. *Arguendo*, the grain sizes could increase in diameter during diffusion bonding with the backing plate, but even with an order of magnitude increase, a 1 μm grain would become a 10 μm grain, still an order of magnitude shy of claim 38's specified size.

Applicant on pp. 6-7 extols the virtues of the retention of smaller grain size after the diffusion bonding through the work hardening of the aluminum target material.

Examiner neither searched nor considered this limitation, as the claims were silent to this feature.

Hunt (506) and Fukasawa must be taken together in a §103(a) combination. As a rule, obviousness is based upon what the "references takes collectively would suggest to those of ordinary skill in the art." *In re Rosselet*, 146 USPQ 183, 186 (CCPA 1965). Furthermore, one cannot show non-obviousness by merely attacking references individually where the rejections are based on combinations of references. *In re Keller*, 208 USPQ 871 (CCPA 1981); *In re Merck & Co., Inc.*, 231 USPQ 375 (Fed. Cir. 1986). Instead, there must be an absence of "some teaching, suggestion or incentive supporting the prior art combination that produces the claimed invention." *In re Bond*, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). "Just as piecemeal reconstruction of the prior art by selecting teachings in light of [the] disclosure is contrary to the requirements of 35 USC § 103, so is the failure to consider as a whole the references collectively as well as individually." *In re Passal*, 165 USPQ 720, 723 (CCPA 1970).

For the above reasons, the rejection is considered proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 703-305-5906. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

WB
March 11, 2003

Olik Chaudhuri
Supervisory Patent Examiner
Technology Center 2800